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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/703,269	10/31/2000	Robert J. Sweeney	279.188US1	9005

21186 7590 11/29/2002

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EXAMINER

WALTON, GEORGE L

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/703,269

Applicant(s)

Sweeney et al

Examiner

George L. Walton

Art Unit

3753



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 23, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6 6) ☐ Other:

Art Unit: 3753

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over either patent to Williams et al (WO 00/47278 or 6,266,554 B1). It is clearly stated that either patent teaches sensing a cardiac signal, comparing the extracted features with a set of predetermined templates and classifying the cardiac signal based on the outcome of the comparison. Also, the extracting features are numerous types as disclosed by either patent. It is obvious that such extracting features can be a feature vector A, for a sensed cardiac complex and a feature vector C, for cardiac complexes sensed during normal sinus rhythm. In addition, feature vectors are derived from morphological features along the sensed cardiac complex wave form. The morphological features are the extracted amplitude values of peaks and valleys (or maxima and minima) in the QRS wave of each arrhythmic complex

Art Unit: 3753

through a **process called feature extraction**. Each arrhythmic complex is isolated according to a **known morphological template**. It is obvious to one of ordinary skill in the art, at the time the invention was made, that the claimed computing curvatures at sample points is obvious in view of the threshold value or a detection criterion, well known in the art, is used to indicate the activation of the heart beat. The resulting feature vector A, includes a set of numbers, each number associated with a particular point of the complex. Also, the normal rhythm vector C, is determined from a predetermined waveform characteristics of cardiac QRS-waves recorded during normal sinus rhythm. The resulting normal rhythm vector, N, includes a set of numbers, each number associated with a particular morphological point of the normal sinus rhythm. Therefore, the sample points are obvious in view of the points along the waveform or the peaks and valleys of the QRS wave. The claimed square error curve is obvious in view of the mean square error calculation. The number of sample points is obvious in view of features A and C along its respective curves or waveforms. Either patent to Williams et al teaches the curvature computations, mean square error calculations, the analyzer, the comparator or comparison circuit, template generator, controller, threshold values, pacing electrical pulse energy, identifying and aligning features, memory to store extracted features and electrode(s) disposed in or around a heart.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as indicated on the PTO-1449 .

Art Unit: 3753

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George L. Walton whose telephone number is (703) 308-2596.

A handwritten signature in cursive script, appearing to read "George L. Walton", with a long horizontal flourish extending to the right.

**GEORGE L. WALTON
PRIMARY PATENT EXAMINER
TECHNOLOGY CENTER - 3700
ART UNIT - 3753**

GLW
November 27, 2002